

*"...Immediately before settling
the grasshopper makes a quick turn,
reversing the course of flight and landing
so as to the face the direction from which it came.*

*This last second curl allows the grasshopper
to determine if its foe is in pursuit.*

So it is with my passage through life.

*Stimulated by hope, fear, joy, or sorrow I take flight.
When it seems I have gone far enough, I turn and stop,
resting for a moment to see if that
which provoked this leg of my journey is still there."*

*from Twisted Thoughts and Crooked Roads
"Prairie Soul: Finding grace in the earth beneath my feet"*

Jeffrey A. Lockwood 2004

GRASSHOPPER LITERATURE CITED GLOSSARY



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GLOSSARY

Abdomen - the posterior of the three main body divisions of an insect (see Figures 8, 9).

Anal - pertaining to the last abdominal segment (which bears the anus); the posterior basal part (for example, of the wing, see Figure 9).

Antennae - (sing. antenna) a pair of segmented sensory appendages located on the head above the mouth parts (see Figures 9, 10).

Anterior - front; in front of.

Apex - (pl. apices) the end of a structure farthest from its base or point of attachment; "tip" of a structure.

Apical - at the end, tip, or outermost part.

Basal - at the base; near the point of attachment (of an appendage).

Carina - (pl. carinae) an elevated ridge or keel, not always high or acute (see Figure 9).

Cercus - (pl. cerci) an appendage (generally paired) near the end of the abdomen, often segmented but sometimes not. Often important in insect classification, especially the Melanoplinae (see Figures 12 and 13 and Appendix B).

Clavate - thickening gradually toward the tip of the antennae, clubbed (see Figure 10).

Clypeus - area on head below the frons that the labrum attaches to (see Figure 7).

Costal field - tegminal region adjacent to the anterior margin or costa (see Figure 9).

Costal margin - the anterior margin of a wing (see Figure 9).

Costal vein - a longitudinal wing vein, usually forming the anterior margin of the wing (see Figure 9).

Coxa - (pl. coxae) the basal segment of the leg (see Figure 8).

Crenulate - having the margin cut into rounded scallops.

Cubitus (Cu) - prominent longitudinal vein of the forewing (see Figure 23).

Disc - somewhat flat circular part or area; central upper portion or central portion, usually of the wing (see Figure 9).

Distal - toward the end farthest from the point of attachment on the body; near or toward the free end or apex of any appendage .

Dorsal - of or belonging to the upper surface.

Dorsum - the back.

Ensiform - sword shaped, with a wide base and tapering toward the tip (see Figure 10).

Fastigium - a depressed area at the front of the vertex of the head.

Femur - (pl. femora) thigh; usually the stoutest segment of the insect leg (see Figures 8, 9) connected to the body by a coxa and trochanter and bearing a tibia at the distal end.

Filiform - threadlike, of uniform diameter (see Figure 10).

Flange - a projected edge of the femur.

Foveola - (pl. foveolae) small depressions or pits located below the vertex (see Figure 7).

Frons - the upper anterior portion of the head, below the vertex and above the clypeus, including the area between the antennal bases.

Frontal costa - broad prominent vertical ridge on front of head between the compound eyes and running down toward the clypeal margin, often bearing a median ocellus (see Figure 7).

Furcula - (pl. furculae) one of a pair of structures at the base of the supra-anal plate of some grasshoppers, often distinctive in size and shape and therefore useful in classification of closely related species (see Figure 13 and Appendix B).

Integument - the outer covering or cuticle of the insect body.

Knee - the point of junction of the femur and the tibia (see Figure 8).

Labrum - upper lip, abutted to the clypeus (see Figure 7).

Lateral carina - ridges on pronotum along lateral margins of the dorsum (see Figure 9).

Lateral lobes - side portions of pronotum, which cover sides of the prothorax.

Marginal field - the anterior area of a wing or tegmen.

Median - in or at the middle; of or pertaining to the middle.

Median carina - any keel or ridge set along the middle on a part of an insect, of the head or pronotum (see Figure 9).

Mesosternum - bottom or ventral portion of the mesothorax (see Figures 14, 15).

Metasternum - bottom or ventral portion of metathorax.

Metazona - portion of the pronotum behind the principal sulcus (see Figure 9).

Ocellus - (pl. ocelli) a simple eye (see Figure 7).

Ovipositor - sharply pointed female organ to facilitate egg deposit into soil or wood (see Figure 11).

Ovipositor valve - dorsal or ventral portion of the ovipositor (see Figure 11).

Posterior - hind or rear.

Postocular - extending behind the eye.

Pronotum - shield-like cover of the prothorax (see Figure 8).

Prosternum - bottom portion of the prothorax, the forebreast.

Proximal - nearer to the body, or to the base of an appendage.

Prozona - portion of the pronotum in front of the principal sulcus (see Figure 9).

Punctate - with impressed dots or punctures.

Radiate veins - the longitudinal veins spreading fan-like in the anal field of the hind wings (see Figure 9).

Right Angle - an angle of 90°; an angle made by the meeting of two straight lines perpendicular to each other.

Spatulate - spoon-shaped; broad with a depression apically, and narrowed basally.

Spine - a thorn-like outgrowth of the integument, usually associated with the leg segments on grasshoppers (see Figure 8).

Spur - Of a leg segment: a movable "spine," usually larger than most spines and located at the apex of the segment (see Figure 8). Of a wing: a dark area running toward the base from the outer band, near front of wing (see Figure 9). Of the thorax: the prosternal tubercle of spurthroated grasshoppers (see Figure 6).

Spurious vein - certain folds or thickenings in the wing surface that resemble veins so nearly as to be readily mistaken for them.

Sternum - the ventral (bottom) portion of the body; segments of the ventral abdomen.

Subapical - near the apex.

Subgenital plate - a plate covering the male genital opening from beneath, often scoop-shaped (see Figures 12, 13 and Appendix B).

Sulcus - (pl. sulci) a groove or furrow.

Supra-anal plate - a more or less triangular-shaped plate over the anus (see Figures 12, 13).

Tarsus - (pl. tarsi) the foot; the jointed appendage attached at the apex of the tibia, bearing the claws (see Figure 8, 9).

Tectiform - tent like structure, sloping from the ridge of the pronotum.

Tegmen - (pl. tegmina) the thickened or leathery front wing of a grasshopper (see Figure 9).

Thorax - the body region behind the head, which bears the legs and wings, formed of the pro-, meso-, and meta- regions between head and abdomen (see Figure 8).

Tibia - (pl. tibiae) the fourth leg segment, between the femur and tarsus (see Figures 8, 9).

Transverse - broader than long; running across.

Trochanter - the second segment of the leg, between the coxa and femur (see Figure 8).

Truncate - cut squarely across; shortened.

Tubericle - a small knob-like or rounded protuberance (see Figure 6).

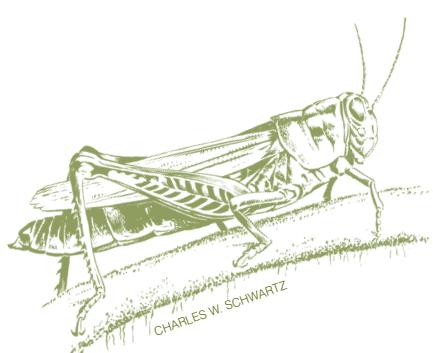
Venation - the complete system of veins of a wing.

Ventral - pertaining to the undersurface.

Vertex - the top of the head, including the upper region between the eyes (see Figure 7).

Wing disc - the central area of a wing, usually in reference to the hind wing (see Figure 9).

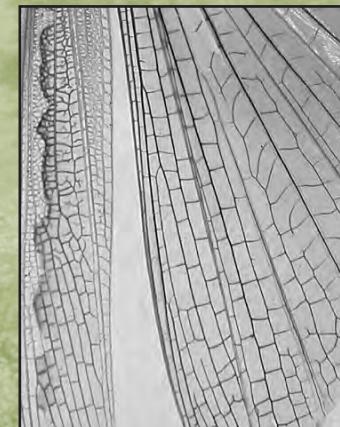
Wing pads - the undeveloped wings of nymphs.



GRASSHOPPER APPENDIX A. County Lists of Species

APPENDIX B. Tables of Melanopline Genitalia

APPENDIX C. Status Rankings



KATHRYN KIRK

APPENDIX A. County Lists of Species



Wisconsin counties.

Adams

Aeropedellus clavatus
Ageneotettix deorum
Arphia sulphurea
Chorthippus curtipennis
Dendrotettix quercus
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus viridipes
Schistocerca lineata
Spharagemon bolli
Spharagemon collare

Ashland

Arphia pseudonietana
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus borealis
Melanoplus bruneri
Melanoplus fasciatus
Melanoplus femur-rubrum

Melanoplus flavidus
Melanoplus sanguinipes
Spharagemon collare

Barron

Cannula pellucida
Chorthippus curtipennis
Dissosteira carolina
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Melanoplus walshii

Bayfield

Arphia conspersa
Booneacris glacialis canadensis
Chloealtis abdominalis
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus borealis

Melanoplus confusus
Melanoplus dawsoni
Melanoplus fasciatus
Melanoplus foedus
Melanoplus islandicus
Melanoplus sanguinipes
Melanoplus viridipes
Pardalophora apiculata
Spharagemon bolli
Stethophyma lineata
Trimerotropis verruculata

Brown

Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus femur-rubrum

Buffalo

Chloealtis conspersa
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus confusus
Melanoplus dawsoni
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus walshii
Opeia obscura
Orphulella pelidna
Orphulella speciosa
Phoetaliotes nebrascensis
Schistocerca alutacea
Spharagemon bolli

Burnett

Arphia conspersa
Arphia pseudonietana
Arphia sulphurea
Cannula pellucida
Chorthippus curtipennis
Chortophaga viridifasciata

Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus foedus
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus viridipes
Orphulella pelidna
Pardalophora apiculata
Schistocerca lineata
Spharagemon collare
Spharagemon marmorata

Calumet

Chorthippus curtipennis
Dissosteira carolina
Melanoplus bivittatus
Melanoplus borealis
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Melanoplus viridipes
Pardalophora apiculata

Chippewa

Arphia conspersa
Arphia pseudonietana
Arphia sulphurea
Chorthippus curtipennis
Dissosteira carolina
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus gladstoni
Melanoplus keeleri
Melanoplus punctulatus griseus
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Mermiria bivittata
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Schistocerca lineata
Spharagemon collare
Spharagemon marmorata

Clark

Chorthippus curtipennis
Dissosteira carolina
Spharagemon collare

Columbia

Ageneotettix deorum
Arphia pseudonietana
Arphia sulphurea
Arphia xanthoptera
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Encoptolophus sordidus
Eritettix simplex
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Orphulella speciosa
Pseudopomala brachyptera
Spharagemon collare

Crawford

Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Hesperotettix viridis pratensis
Melanoplus bivittatus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri
Orphulella pelidna
Orphulella speciosa
Pseudopomala brachyptera
Syrbula admirabilis

Dane

Ageneotettix deorum
Arphia pseudonietana
Arphia sulphurea
Cannula pellucida
Chloea altis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus confusus
Melanoplus dawsoni

Dichromorpha viridis

Dissosteira carolina
Encoptolophus sordidus
Eritettix simplex
Melanoplus angustipennis

Melanoplus bivittatus
Melanoplus borealis
Melanoplus bruneri
Melanoplus confusus
Melanoplus dawsoni
Melanoplus differentialis
Melanoplus femur-rubrum

Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus viridipes
Opeia obscura
Orphulella pelidna
Orphulella speciosa
Pardalophora apiculata
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Romalea microptera
Schistocerca americana
Schistocerca lineata
Spharagemon bolli
Spharagemon collare
Trachyrhachys kiowa
Trimerotropis maritima

Dodge

Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus femur-rubrum

Door

Arphia pseudonietana
Arphia sulphurea
Booneacris glacialis canadensis
Cannula pellucida
Chloea altis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus confusus
Melanoplus dawsoni

Melanoplus femur-rubrum

Melanoplus islandicus
Melanoplus keeleri
Melanoplus punctulatus griseus
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Spharagemon collare
Trimerotropis huroniana
Trimerotropis verruculata

Douglas

Arphia conspersa
Arphia pseudonietana
Arphia sulphurea
Booneacris glacialis canadensis
Cannula pellucida
Chloea altis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus dawsoni
Melanoplus fasciatus
Melanoplus femur-rubrum
Melanoplus foedus
Melanoplus islandicus
Melanoplus sanguinipes
Orphulella pelidna
Pardalophora apiculata
Trimerotropis verruculata

Dunn

Ageneotettix deorum
Arphia conspersa
Arphia pseudonietana
Arphia sulphurea
Chloea altis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus angustipennis
Melanoplus bivittatus

Melanoplus borealis

Melanoplus confusus
Melanoplus dawsoni
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus foedus
Melanoplus gladstoni
Melanoplus keeleri
Melanoplus punctulatus griseus
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Mermiria bivittata
Opeia obscura
Orphulella pelidna
Orphulella speciosa
Pardalophora apiculata
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Psinidia fenestralis
Schistocerca lineata
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Trimerotropis maritima

Eau Claire

Arphia pseudonietana
Arphia sulphurea
Chorthippus curtipennis
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus walshii
Mermiria bivittata
Opeia obscura
Pardalophora apiculata
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Schistocerca lineata
Spharagemon collare
Spharagemon marmorata

Florence

Cannula pellucida
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus sanguinipes

Fond du Lac

Cannula pellucida
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus femur-rubrum
Melanoplus sanguinipes
Metalepta brevicornis
Pardalophora apiculata

Forest

Dissosteira carolina

Grant

Arphia simplex
Arphia xanthoptera
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dendrotettix quercus
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Eritettix simplex
Hesperotettix viridis pratensis
Hippiscus ocelote
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus dawsoni
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus punctulatus griseus
Melanoplus rusticus obovatipennis
Melanoplus sanguinipes
Melanoplus scudderi
Melanoplus viridipes
Melanoplus walshii
Orphulella speciosa
Pardalophora apiculata

Phoetaliotes nebrascensis
Pseudopomala brachyptera
Psinidia fenestralis
Romalea microptera
Schistocerca alutacea
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Stethophyma lineata
Syrbula admirabilis
Trachyrhachys kiowa
Trimerotropis maritima

Green

Arphia xanthoptera
Chloealtis conspersa
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus confusus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus viridipes
Orphulella pelidna
Orphulella speciosa
Phoetaliotes nebrascensis
Schistocerca lineata

Green Lake

Chortophaga viridifasciata
Dissosteira carolina
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus sanguinipes

Iowa

Ageneotettix deorum
Arphia conspersa
Arphia sulphurea
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina

Encoptolophus sordidus
Eritettix simplex
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Orphulella speciosa
Pardalophora apiculata
Pseudopomala brachyptera
Schistocerca lineata
Spharagemon collare
Syrbula admirabilis
Trachyrhachys kiowa

Iron

Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Melanoplus bivittatus
Melanoplus borealis
Melanoplus bruneri
Melanoplus dawsoni
Melanoplus sanguinipes

Jackson

Arphia pseudonietana
Arphia sulphurea
Arphia xanthoptera
Booneacris glacialis canadensis
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dendrotettix quercus
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus borealis
Melanoplus confusus
Melanoplus dawsoni
Melanoplus fasciatus

Melanoplus femur-rubrum
Melanoplus islandicus
Melanoplus keeleri
Melanoplus punctulatus griseus
Melanoplus sanguinipes
Melanoplus stonei
Melanoplus viridipes
Melanoplus walshii
Opeia obscura
Orphulella pelidna
Orphulella speciosa
Paratylotropidia brunneri
Pardalophora apiculata
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Psinidia fenestralis
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Trachyrhachys kiowa

Jefferson

Arphia pseudonietana
Chorthippus curtipennis
Dissosteira carolina
Melanoplus bivittatus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus punctulatus griseus
Orphulella speciosa
Spharagemon bolli

Juneau

Arphia pseudonietana
Arphia sulphurea
Chloealtis abdominalis
Chloealtis conspersa
Chortophaga viridifasciata
Dendrotettix quercus
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus borealis
Melanoplus confusus
Melanoplus dawsoni
Melanoplus femur-rubrum

Juneau (continued)

Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus viridipes
Orphulella speciosa
Spharagemon collare
Spharagemon marmorata

Kenosha

Ageneotettix deorum
Chorthippus curtipennis
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Orphulella speciosa

Kewaunee

Arphia pseudonietana
Cannula pellucida
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Stethophyma gracile

La Crosse

Chorthippus curtipennis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus foedus
Melanoplus keeleri
Melanoplus punctulatus griseus
Orphulella speciosa
Pardalophora apiculata
Schistocerca lineata

Lafayette

Chortophaga viridifasciata
Dissosteira carolina
Melanoplus differentialis
Melanoplus femur-rubrum

Langlade

Arphia pseudonietana
Arphia sulphurea
Cannula pellucida
Chorthippus curtipennis
Chortophaga viridifasciata
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus borealis
Melanoplus confusus
Melanoplus fasciatus
Melanoplus sanguinipes
Melanoplus viridipes
Pardalophora apiculata
Trimerotropis verruculata

Lincoln

Arphia pseudonietana
Cannula pellucida
Chloealtis conspersa
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Melanoplus viridipes
Spharagemon collare

Manitowoc

Aeropedellus clavatus
Arphia pseudonietana
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus

Melanoplus confusus

Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus scudderii
Melanoplus stoneyi
Spharagemon bolli
Spharagemon collare

Marathon

Arphia pseudonietana
Arphia sulphurea
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus bruneri
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Pardalophora haldemanii
Schistocerca lineata
Spharagemon bolli
Spharagemon collare

Marinette

Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus islandicus
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Pardalophora apiculata
Spharagemon collare
Stethophyma gracile
Stethophyma lineata
Trimerotropis verruculata

Marquette

Arphia sulphurea
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus fasciatus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Pardalophora apiculata
Pseudopomala brachyptera
Schistocerca lineata
Spharagemon bolli
Spharagemon collare

Menominee

Arphia sulphurea
Melanoplus bivittatus
Melanoplus sanguinipes

Milwaukee

Arphia pseudonietana
Arphia sulphurea
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Encoptolophus costalis
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus viridipes
Schistocerca alutacea
Schistocerca americana
Schistocerca damnifica
Trimerotropis maritima

Monroe

Arphia sulphurea
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dendrotettix quercus
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus dawsoni
Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Orphulella speciosa
Pardalophora apiculata
Pardalophora haldemanii
Pseudopomala brachyptera
Schistocerca alutacea
Schistocerca lineata
Spharagemon bolli
Spharagemon collare

Oconto

Arphia sulphurea
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dendrotettix quercus
Dissosteira carolina
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus islandicus
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Spharagemon collare

Oneida

Booneacris glacialis canadensis
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis

Dissosteira carolina

Melanoplus bivittatus
Melanoplus borealis
Melanoplus confusus
Melanoplus fasciatus
Melanoplus femur-rubrum
Melanoplus islandicus
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Pardalophora apiculata
Spharagemon collare
Trimerotropis verruculata

Outagamie

Ageneotettix deorum
Arphia sulphurea
Chorthippus curtipennis
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus borealis
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Opeia obscura
Orphulella speciosa
Pardalophora apiculata
Trachyrhachys kiowa

Ozaukee

Chorthippus curtipennis
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus viridipes

Pepin

Aeropedellus clavatus
Arphia simplex
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus angustipennis
Melanoplus femur-rubrum
Melanoplus viridipes
Pardalophora apiculata
Psinidia fenestralis
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Trimerotropis maritima

Pierce

Aeropedellus clavatus
Ageneotettix deorum
Arphia pseudonietana
Arphia simplex
Arphia sulphurea
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Hesperotettix viridis pratensis
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus foedus
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus walshii
Orphulella pelidna
Pardalophora apiculata
Schistocerca alutacea
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Trimerotropis maritima

Polk

Arphia sulphurea
Cannula pellucida
Chloealtis abdominalis
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Eritettix simplex
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus punctulatus griseus
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Pardalophora apiculata
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Schistocerca alutacea
Schistocerca lineata
Spharagemon collare

Portage

Aeropedellus clavatus
Ageneotettix deorum
Arphia pseudonietana
Arphia sulphurea
Arphia xanthoptera
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Hesperotettix viridis pratensis
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus sanguinipes
Orphulella speciosa
Pardalophora apiculata
Pardalophora haldemanii
Pseudopomala brachyptera
Psinidia fenestralis
Schistocerca lineata
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Stethophyma gracile
Trachyrhachys kiowa

Price

Cannula pellucida
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus femur-rubrum
Pardalophora apiculata
Trimerotropis verruculata

Racine

Chorthippus curtipennis
Dissosteira carolina
Melanoplus femur-rubrum
Orphulella speciosa
Trimerotropis maritima

Richland

Ageneotettix deorum
Arphia sulphurea
Arphia xanthoptera
Chloeaaltis conspersa
Chorthippus curtipennis
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Hesperotettix viridis pratensis
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus dawsoni
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus islandicus
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus scudderi
Melanoplus walshii
Mermiria bivittata
Orphulella pelidna
Orphulella speciosa
Pardalophora haldemanii
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Psinidia fenestralis
Schistocerca alutacea
Schistocerca lineata
Trachyrhachys kiowa
Trimerotropis maritima

Rock

Arphia pseudonietana
Chorthippus curtipennis
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus differentialis
Melanoplus femur-rubrum
Orphulella speciosa

Rusk

Arphia sulphurea
Cannula pellucida
Dissosteira carolina
Dissosteira carolina
Melanoplus bivittatus
Melanoplus sanguinipes
Melanoplus viridipes

Sauk

Ageneotettix deorum
Arphia conspersa
Arphia pseudonietana
Arphia sulphurea
Arphia xanthoptera
Chloeaaltis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Encoptolophus sordidus
Eritettix simplex
Hesperotettix speciosus
Hesperotettix viridis pratensis
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus dawsoni
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus foedus
Melanoplus keeleri
Melanoplus punctulatus griseus
Melanoplus sanguinipes
Mermiria bivittata
Orphulella speciosa
Pardalophora apiculata
Phoetaliotes nebrascensis
Pseudopomala brachyptera
Psinidia fenestralis
Schistocerca lineata
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Trachyrhachys kiowa

Sawyer

Arphia pseudonietana
Cannula pellucida
Chortophaga viridifasciata
Melanoplus bivittatus
Melanoplus borealis
Melanoplus sanguinipes
Melanoplus viridipes
Trimerotropis verruculata

Shawano

Ageneotettix deorum
Arphia conspersa
Arphia sulphurea
Arphia xanthoptera
Cannula pellucida
Chortophaga viridifasciata
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus borealis
Melanoplus confusus
Melanoplus fasciatus
Melanoplus sanguinipes
Pardalophora apiculata
Psinidia fenestralis
Spharagemon collare
Spharagemon marmorata
Stethophyma gracile

Sheboygan

Aeropedellus clavatus
Cannula pellucida
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Melanoplus walshii
Spharagemon bolli
Spharagemon collare
Trimerotropis maritima

St. Croix

Arphia pseudonietana
Arphia simplex
Arphia sulphurea
Chloeaaltis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus walshii
Orphulella speciosa
Pseudopomala brachyptera

Taylor

Chorthippus curtipennis
Chortophaga viridifasciata
Melanoplus sanguinipes

Trempealeau

Arphia pseudonietana
Arphia simplex
Chloeaaltis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Hesperotettix viridis pratensis
Melanoplus bivittatus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus keeleri
Melanoplus viridipes

Vernon

Chloeaaltis conspersa
Chorthippus curtipennis
Dissosteira carolina
Hesperotettix viridis pratensis
Melanoplus bivittatus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri

Vernon (continued)

Melanoplus sanguinipes
Melanoplus walshii
Orphulella pelidna
Orphulella speciosa
Pardalophora apiculata
Spharagemon bolli
Spharagemon collare

Vilas

Arphia pseudonietana
Booneacris glacialis canadensis
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Melanoplus bivittatus
Melanoplus bruneri
Melanoplus islandicus
Melanoplus sanguinipes
Pardalophora apiculata
Spharagemon collare
Trimerotropis verruculata

Walworth

Arphia pseudonietana
Arphia sulphurea
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus confusus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus viridipes
Orphulella speciosa
Spharagemon bolli
Spharagemon collare
Stethophyma gracile

Washburn

Arphia sulphurea
Cannula pellucida
Cannula pellucida
Melanoplus dawsoni
Melanoplus femur-rubrum
Melanoplus sanguinipes

Washington

Arphia pseudonietana
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus walshii
Orphulella speciosa
Spharagemon bolli

Waukesha

Ageneotettix deorum
Arphia pseudonietana
Arphia sulphurea
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Chortophaga viridifasciata
Dissosteira carolina
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus sanguinipes
Melanoplus viridipes
Orphulella speciosa
Pardalophora apiculata
Pseudopomala brachyptera
Schistocerca lineata
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata

Waupaca

Aeropedellus clavatus
Ageneotettix deorum
Arphia sulphurea
Arphia xanthoptera
Chorthippus curtipennis
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Pardalophora apiculata
Pseudopomala brachyptera
Schistocerca lineata
Spharagemon bolli
Spharagemon collare
Spharagemon marmorata
Trachyrhachys kiowa

Waushara

Aeropedellus clavatus
Ageneotettix deorum
Arphia pseudonietana
Arphia sulphurea
Chortophaga viridifasciata
Dendrotettix quercus
Dissosteira carolina
Melanoplus angustipennis
Melanoplus bivittatus
Melanoplus confusus
Melanoplus differentialis
Melanoplus femur-rubrum
Melanoplus flavidus
Melanoplus sanguinipes
Pardalophora apiculata
Pardalophora haldemanii
Schistocerca alutacea
Schistocerca lineata
Spharagemon collare
Spharagemon marmorata
Trachyrhachys kiowa

Winnebago

Arphia sulphurea
Arphia xanthoptera
Chorthippus curtipennis
Chortophaga viridifasciata
Dichromorpha viridis
Dissosteira carolina
Encoptolophus sordidus
Melanoplus bivittatus
Melanoplus confusus
Melanoplus differentialis
Melanoplus femur-rubrum
Orphulella speciosa
Pardalophora apiculata
Pardalophora haldemanii
Schistocerca alutacea

Wood

Ageneotettix deorum
Arphia sulphurea
Cannula pellucida
Chloealtis conspersa
Chorthippus curtipennis
Dendrotettix quercus
Dissosteira carolina
Melanoplus bivittatus
Melanoplus dawsoni
Melanoplus fasciatus
Melanoplus femur-rubrum
Melanoplus keeleri
Melanoplus sanguinipes
Melanoplus viridipes
Melanoplus walshii
Orphulella pelidna
Orphulella speciosa
Pardalophora apiculata
Pardalophora phoenicoptera
Pseudopomala brachyptera
Schistocerca lineata
Spharagemon bolli
Spharagemon marmorata
Trachyrhachys kiowa

APPENDIX B. Tables of Melanopline Genitalia

Table A. Short wings and no furculae

Species	Cercus	Furcula	Subgenital Plate
<i>Paratylotropidia brunneri</i>			

Table A. Short wings and green legs

Species	Cercus	Furcula	Subgenital Plate
<i>M. viridipes</i>			
<i>M. gracilis</i>			
<i>M. rusticus obovatipennis</i>			

Table B. Short wings and pink or red legs

Species	Cercus	Furcula	Subgenital Plate
<i>M. islandicus</i>			
<i>M. walshii</i>			
<i>M. huroni</i>			
<i>M. scudder scudder</i>			
<i>M. dawsoni</i>			

APPENDIX B. Tables of Melanopline Genitalia (continued)

Table C. Wings 1 1/2 pronotal length to near apex of abdomen

Species	Cercus	Furcula	Subgenital Plate
<i>M. fasciatus</i>			
<i>M. borealis borealis</i>			

Table D. Long wings and long furculae (see also Tables B and C, *M. dawsoni* and *M. borealis*)

Species	Cercus	Furcula	Subgenital Plate
<i>M. bruneri</i>			
<i>M. sanguinipes sanguinipes</i>			
<i>M. flavidus</i>			
<i>M. femurrubrum</i>			

APPENDIX B. Tables of Melanopline Genitalia (continued)

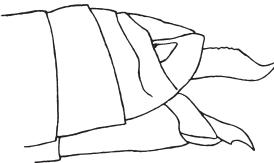
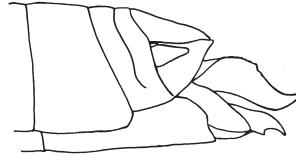
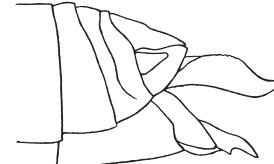
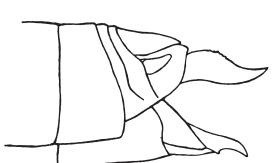
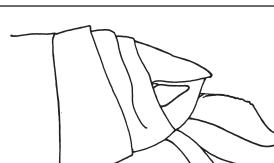
Table E. Long wings and cercus with a protrusion

Species	Cercus	Furcula	Subgenital Plate
<i>M. keeleri luridus</i>			
<i>M. confusus</i>			
<i>M. punctulatus griseus</i>			
<i>M. differentialis differentialis</i>			
<i>M. bivittatus</i>			

**Table F. Long wings and cercus with no protrusion
(see also Table C, *M. fasciatus*)**

Species	Cercus	Furcula	Subgenital Plate
<i>M. gladstoni</i>			
<i>M. angustipennis</i>			
<i>M. packardii</i>			
<i>M. foedus fluviatilis</i>			
<i>M. stonei</i>			

APPENDIX B. Tables of Melanopline Genitalia (continued)

Table G. Female Genitalia	
Species	
<i>M. dawsoni</i>	
<i>M. femurrubrum</i>	
<i>M. borealis borealis</i>	
<i>M. keeleri luridus</i>	
<i>M. fasciatus</i>	
<i>M. gladstoni</i>	

APPENDIX C. Species Status Rankings



The Wisconsin DNR's Natural Heritage Inventory (NHI) program is part of an international network of programs that focus on rare plants and animals, natural communities, and other rare elements of nature. The defining and unifying characteristic of this network is the use of a standard methodology for collecting, processing, and managing data on the occurrences of natural biological diversity. A key feature of the NHI methodology is a system for assessing rarity of the various elements at the global (**G**) and state (**S**) level. These status ranks have proven useful in directing action toward the elements most in need of conservation. The methodology was developed by The Nature Conservancy and is currently coordinated by NatureServe, an international non-profit organization. The Wisconsin NHI Working List records "elements" tracked by the Wisconsin DNR. The list is revised as species' populations change (increase or decrease) and as knowledge about their status and distribution in Wisconsin increases. Definitions of legal protection categories and state and global status ranks used in the species accounts are provided below.

Protection Category

END = Endangered

Any species whose continued existence as a viable component of this state's wild animals or wild plants is determined by the Department to be in jeopardy on the basis of scientific evidence.

THR = Threatened

Any species which appears likely, within the foreseeable future, on the basis of scientific evidence to become endangered.

SC = Special Concern

Those species about which some problem of abundance or distribution is suspected but not yet proven. The main purpose of this category is to focus attention on certain species before they become threatened or endangered.

State Ranks

S1 = Critically imperiled in Wisconsin because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the state.

S2 = Imperiled in Wisconsin because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3 = Rare or uncommon in Wisconsin (21 to 100 occurrences).

S4 = Apparently secure in Wisconsin, with many occurrences.

S5 = Demonstrably secure in Wisconsin and essentially ineradicable under present conditions.

SA = Accidental (occurring only once or a few times) or casual (occurring more regularly although not every year); a few of these species (typically long-distance migrants such as some birds and butterflies) may have even bred on one or more of the occasions when they were recorded.

(continued on next page)

- SE** = An exotic established in the state; may be native elsewhere in North America.
- SH** = Of historical occurrence in Wisconsin, perhaps having not been verified in the past 20 years, and suspected to be still extant. Naturally, an element would become SH without such a 20-year delay if the only known occurrence were destroyed or if it had been extensively and unsuccessfully looked for.
- SN** = Regularly occurring, usually migratory and typically non-breeding species for which no significant or effective habitat conservation measures can be taken in Wisconsin. This category includes migratory birds and bats that pass through twice a year or, may remain in the winter (or, in a few cases, the summer) along with certain Lepidoptera which regularly migrate to Wisconsin where they reproduce, but then completely die out every year with no return migration. Species in this category are so widely and unreliably distributed during migration or in winter that no small set of sites could be set aside with the hope of significantly furthering their conservation.
- SZ** = Not of significant conservation concern in Wisconsin, invariably because there are no definable occurrences in the state, although the taxon is native and appears regularly in the state. An SZ rank will generally be used for long-distance migrants whose occurrence during their migrations are too irregular (in terms of repeated visitation to the same locations), transitory, and dispersed to be reliably identified, mapped, and protected. Typically, the SZ rank applies to a non-breeding population.
- SR** = Reported from Wisconsin, but without persuasive documentation which would provide a basis for either accepting or rejecting the report. Some of these are very recent discoveries for which the NHI program has not yet received first-hand information; others are old, obscure reports that are hard to dismiss because the habitat is now destroyed.
- SRF** = Reported falsely (in error) from Wisconsin but this error is persisting in the literature.
- SU** = Possibly in peril in the state, but status is uncertain. More information is needed.
- SX** = Apparently extirpated from the state.

Global Ranks

- G1** = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G2** = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
- G3** = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single state or physiographic region) or because of other factors making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
- G4** = Apparently globally secure, though it may be quite rare in parts of its range, especially at the periphery.
- G5** = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.



Notes and Sketches



About the Authors

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